

Daniel F. Caruso
Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

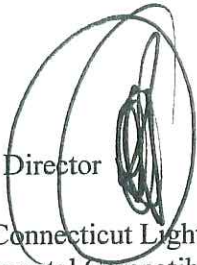
Internet: ct.gov/csc

June 14, 2007

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director

RE: **DOCKET NO. 326** - The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed substation located at Stepstone Hill Road, Guilford, Connecticut.



As stated at the hearing in Guilford on April 24, 2007, after the Council issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Connecticut Siting Council on the Draft Findings of Fact issued on this docket by June 27, 2007.

SDP/laf

Enclosure

Date: April 25, 2007

Docket No. 326

Page 1 of 1

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	The Connecticut Light and Power Company (CL&P)	<p>Robert E. Carberry, Manager Transmission Siting and Permitting Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 (860) 665-6774 (860) 665-6717 fax carbere@nu.com</p> <p>Kathleen A. Shea, Esq. Northeast Utilities Service Company, Legal Dept. P.O. Box 270 Hartford, CT 06141-0270 (860) 665-2396 sheaka@nu.com</p> <p>Helen Wong, Project Manager Transmission Project Management Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 (860) 665-2464 (860) 665-6550 fax wonghh@nu.com</p> <p>Anthony M. Fitzgerald, Esq. Robert S. Golden, Esq. Marianne Barbino Dubuque, Esq. Carmody & Torrance LLP P.O. Box 1110 Waterbury, CT 06721-1110 (203) 573-1200 afitzgerald@carmodylaw.com rgolden@carmodylaw.com mdubuque@carmodylaw.com</p>
Party (Granted 04/24/07)	Russi T. Suntoke 10 Stepstone Hill Road Guilford, CT 06437 (203) 453-3426 russisuntoke@hotmail.com	

DOCKET NO. 326 - The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed substation located at Stepstone Hill Road, Guilford, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	June 1, 2007

Findings of Fact

Introduction

1. The Connecticut Light and Power Company (CL&P), in accordance with provisions of Connecticut General Statutes Sections 16-50g et seq., and Section 16-50j-1 et seq. of the Regulations of Connecticut State Agencies (RCSA), applied to the Connecticut Siting Council (Council) on December 15, 2006 for the construction, operation, and maintenance of a new substation to be located on CL&P's 38-acre property located at Stepstone Hill Road, Guilford, Connecticut. (CL&P 1, Vol. I, p. A-1)
2. The purpose of the proposed facility is to increase the capacity and reliability of the electric power distribution system in Guilford and adjacent towns. (CL&P 1, Vol. I, p. A-1)
3. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on April 24, 2006, beginning at 3:30 p.m. and continuing at 7:00 p.m. at the Guilford High School Auditorium, 605 New England Road, Guilford, Connecticut. (Council's Hearing Notice dated April 11, 2007; Transcript 1 – April 26, 2007 at 3:40 p.m. [Tr. 1], p. 3; Transcript 2 – 7:00 p.m. [Tr. 2], p. 3)
4. The parties in this proceeding are the applicant and Russi T. Suntoke. (Tr. 1, p. 4; Tr. 2, p. 28)
5. The Council and its staff made an inspection of the proposed substation site on April 24, 2007, beginning at 2:30 p.m. (Council's Hearing Notice dated April 11, 2007)
6. Pursuant to CGS § 16-50f (b), public notice of the application was published in The New Haven Register on November 29, 2006 and December 1, 2006 (CL&P 1, Vol. I, p. Q3 & Exh. 1)
7. Pursuant to CGS § 16-50f (b), notice of the application was provided to all abutting property owners by certified mail. (CL&P 1, Vol. I, Exh. 1)
8. Pursuant to CGS § 16-50f (b), CL&P provided notice to all federal, state and local officials and agencies listed therein. (CL&P 1, Vol. I, Exh. 1)
9. On or about November 28, 2005, CL&P sent copies of its application to the Connecticut Energy Advisory Board (CEAB). (CL&P 1, Vol. I, Exh. 1).

10. On December 29, 2006, the CEAB issued a Request for Proposals (RFP) seeking alternatives to the proposed substation, pursuant to CGS § 16a-7c. (Council Admin. Notice, Item 32)
11. Proposals for alternatives to the proposed substation were to be submitted to the CEAB no later than February 27, 2007. None were received. (Council Admin. Notice, Item 32)
12. On April 5, 2007, the CEAB issued its final report indicating that the proposed substation conforms to the most relevant of the Preferential Criteria for this project, which is enhanced reliability. Thus, the CEAB views the proposed project favorably. (Council Admin. Notice, Item 32)

State Agency Comment

13. Pursuant to CGS § 16-50I, on April 11, 2007 and April 25, 2007, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Environmental Protection (DEP), Department of Public Health (DPH), Council on Environmental Quality (CEQ), Department of Public Utility Control (DPUC), Office of Policy and Management (OPM), Department of Economic and Community Development (DECD), and the Department of Transportation (DOT). (Record)
14. The Council received a response from the DOT's Bureau of Engineering and Highway Operations on April 25, 2007, and a revised response on May 1, 2007. DOT had no comments. (DOT Comments dated April 25 and May 1, 2007)
15. The Council received a response from the DPH dated January 17, 2007. (DPH Comments date January 17, 2007)
16. DPH notes that the proposed construction is on the Aquifer Protection Area (APA) Level A delineation for the Pinewood Wellfield of the Connecticut Water Company. The DPH is concerned for the protection of the source of drinking water that serves this area. Moving the proposed substation 200 feet to the east would remove the substation from being within the Final Aquifer Protection Area. (DPH Comments dated January 17, 2007)
17. DPH also recommends that the applicant avoid cleaning of equipment on the locations of the future construction due to possible contamination from equipment chemicals. The applicant should also avoid any storage of fuel or refueling within the APA. (DPH Comments dated January 17, 2007)
18. The following agencies did not respond with comment on the application: DEP, CEQ, DPUC, OPM, and DECD. (Record)

Municipal Consultation

19. CL&P notified the Town of Guilford of the proposal on October 5, 2006 by sending a technical report to the First Selectman, Carl A. Balestracci, Jr. CL&P filed a locational approval application with the Guilford Inland Wetlands Commission (Town IWC) and Planning and Zoning Commission (Town P&Z) on July 6, 2006. (CL&P 1, Vol. I, p. Q-2)
20. The Town IWC held its walk meeting on August 2, 2006. CL&P received locational approval without conditions on September 6, 2006. (CL&P 1, Vol. II, App. G)
21. The Town P&Z held a public meeting on September 12, 2006. The Town P&Z unanimously approved CL&P's location approval application on September 20, 2006, and later modified the approval to remove land-use restrictions. The approval was subject to the following conditions:
 - a) Plans for storm water management must be reviewed by the Town Engineer prior to commencement of construction of this facility.
 - b) No hazardous materials as defined by Guilford's Groundwater Protection District regulations shall be stored at the site.
 - c) CL&P shall conform to Guilford's noise ordinance.
 - d) CL&P shall otherwise maintain the existing foliage to insure visual and noise screening.
 - e) Prior to the removal of trees as part of construction, the Town Tree Warden shall be notified to coordinate a site visit.
 - f) No lights will be visible except for maintenance and emergency lighting. (However, low level lighting already in place may be used should vandalism become a problem.)
 - f) CL&P will agree to all conditions of the Inland Wetlands Commission.
 - g) The access road will be curved to minimize visual impacts on Stepstone Hill Road. (No further curvature or modification from what is planned is required.)
22. CL&P is willing to meet the Town P&Z conditions, but believes condition e) requires clarification. Notwithstanding, CL&P is willing to maintain the visual buffer. (Tr. 1, p. 26)
23. First Selectman Carl A. Balestracci expressed his support for the proposed project. His only concern is, if the project is approved, and CL&P completes the project, that CL&P not sell off any parts of the property, but maintain the property as one parcel to maintain the buffer for the citizens that live in that neighborhood. (Tr. 1, pp. 7-9)
24. CL&P is not amenable to maintaining the entire property as one parcel in perpetuity. (Tr. 1, p. 28)

Need

25. The proposed substation is to address the need for additional distribution system capacity and reliability in Guilford and adjacent towns. (CL&P 1, Vol. I, p. A-1)
26. The addition of a new inland bulk power substation in Guilford, centrally located between the two existing bulk sources and with a proposed 115-kV looped transmission supply, will increase capacity and create a stronger and more reliable distribution system. (CL&P 7, K. Bowes pp. 11-12)
27. The Guilford load is served from the Branford Substation in Branford and Green Hill Substation in Madison. Two 23-kV feeders from the Branford Substation and one 23-kV feeder from the Green Hill Substation supply power to a distribution substation in Guilford, where the voltage is reduced to 13.8-kV and where four 13.8-kV feeders emanate and serve the Guilford town center and portions of Guilford town east and west of Route 77 as far north as Route 80. (CL&P 1, Vol. I, p. G-3; CL&P 7, K. Bowes, p. 13)
28. A central portion of Guilford is vulnerable to long outages should a severe storm, such as a hurricane, damage the 23-kV distribution feeder lines that stretch east and west along the coast bringing power from bulk substations in Madison and Branford to a small distribution substation in Guilford. (CL&P 1, Vol. I, p. A-1; CL&P 7, K. Bowes, p. 11)
29. Guilford and its surrounding towns (Branford, Madison, Clinton, and Killingworth) have experienced significant growth over the past two decades. The migration of residents who commute to southwestern Connecticut has accelerated as those communities along Interstate 95 have become increasingly developed. This change in demographics, as well as new larger homes has resulted in more electric consumption. The kilowatt-hour use in these five towns has increased more than 67 percent from 1981 through 2004. (CL&P 1, Vol. I, p.G-1)
30. Peak demand is expected to grow at an annual compound rate of between 2 and 3 percent. The Guilford Substation is expected to exceed its load ratings as early as 2008. (CL&P 1, Vol. I, p. G-4; CL&P 7, K. Bowes, p. 13)
31. The Branford Substation and Green Hill Substation currently have permissible load ratings of 95 MVA and 89 MVA, respectively, based on a forced load transfer of 14 MVA from one bulk substation to the other. During the summer of 2006, peak loads at the Branford substation reached 87.8 MVA. Based on the higher end growth estimate of 3 percent for peak load growth, the Branford Substation will exceed its permissible load rating by 2009. (CL&P 1, Vol. I, p.G-4)
32. By adding a new bulk power substation to the area, CL&P can improve reliability by the deployment of more recloser-loop schemes on the distribution feeders. Recloser-loop schemes minimize the number of customers that lose power during an outage when power is available from more than one direction or source. (CL&P 7, K. Bowes, p. 15)

Site Alternatives

33. To ensure that the proposed substation location was a viable site, CL&P reviewed and evaluated a total of four sites: the proposed substation site (Site 1); farm property east of Little Meadow Road in Guilford (Site 2); CL&P-owned property located west of Warpas Road in Madison (Site 3); and Orchard property north of the New England Road in Guilford (Site 4). (CL&P 1, Vol. I, p. I-1 through I-6)
34. In its site evaluations, CL&P used the following criteria to judge a particular location's viability: sufficient space for needed facilities; proximity to an existing 115-kV transmission circuit; central location with respect to local distribution (customer) load area; proximity to neighbors and other surrounding features; natural resource and cultural resource constraints; zoning and present land use; access from a public road; and earthwork requirements based on existing topography. (CL&P 1, Vol. I, pp. I-1)
35. CL&P determined that the proposed site would allow the proposed substation to be centrally located with respect to Guilford customer load, and to easily connect into the existing 115-kV transmission line located in southern portion of the property. CL&P also owns the property. (CL&P 1, Vol. I, p. I-3)
36. The proposed site has existing access from Stepstone Hill Road. It has a large size (38 acres), which allows the substation to be built nearly 800 feet off of Stepstone Hill Road and over 600 feet from the nearest residence. (CL&P 1, Vol. I, p. I-3)
37. Existing trees reduce the view of the substation at the proposed site. (CL&P 2, Vol. I, p. I-3)
38. The proposed site requires minimal earthwork to construct the substation. (CL&P 1, Vol. I, pp. I-3 and I-4)
39. CL&P determined that Site 2 (27.41 acres) was unsuitable because the substation would require moderate to heavy earthwork, given that a new road would be required to reach the interior of the property, and that there is potential for substantial adverse environmental effects. CL&P would have to purchase the property also. (CL&P 1, Vol. I, p. I-4 and I-5)
40. CL&P determined that Site 3 (6.8 acres) was unsuitable because it was not located in proximity to the Guilford load center, extensive cutting of mature forest would be necessary, and access to the site would be gained through a residential area with several homes close to the site. This property is owned by CL&P. (CL&P 1, Vol. I, pp. I-5 and I-6)
41. CL&P determined that Site 4 (174 acres) would be unsuitable given that the property's agricultural history suggests that site soils may have elevated levels of pesticides, potentially jeopardizing the re-use of the material and creating significant off-site treatment/disposal costs. CL&P also determined that the site was unsuitable because the section of the property that is feasible for development is higher in elevation than the surrounding area and lacks sufficient vegetative buffer for screening. Also, a significant land purchase would be required for CL&P to construct at this property. (CL&P 1, Vol. I, p. I-4)

Description of Proposed Project

42. The proposed project would be located on a 38-acre property located off of Stepstone Hill Road in Guilford. This project would include the construction of a new 115-kV to 13.8-kV electric substation, reconstruction of a the existing unimproved dirt access drive, an construction of two new transmission poles on the substation property to connect to the existing 115-kV circuit #1508. (CL&P 1, Vol. I, pp. F-1 and F-3; CL&P 7, K. Bowes, p. 20)
43. A metal-clad switchgear enclosure, approximately 24 feet long, 14 feet wide and 14 feet high would be constructed to provide switching equipment for three distribution feeders. A 48-foot long by 14-foot wide by 14-foot high protective relay and control equipment enclosure and a 24-foot long by 14-foot wide by 14-foot high battery enclosure would be installed at the east end of the substation. (CL&P 1, Vol. I, pp. F-1 and F-3; CL&P 7, K. Bowes, p. 20)
44. The proposed substation would be supplied from the existing 115-kV, #1508 transmission circuit that interconnects the Branford Substation in Branford with the Green Hill Substation in Madison. (CL&P 7, K. Bowes, p. 20)
45. The transmission line would be looped through the proposed substation and a new 115-kV circuit breaker would be installed in the 115-kV substation bus to separate the existing transmission circuit #1508 into two circuits. The connections between the substation and the 115-kV transmission line would be made by installing new spans of conductors from two new 85-foot tall steel poles in the line to two line-terminal structures within the substation, where each structure would support a line-disconnect switch and conductor drops to a 115-kV bus. (CL&P 7, K. Bowes, p. 20; Tr. 1, p. 23)
46. The 65-foot transmission takeoff structure would be the tallest structure within the proposed substation. (Tr. 1, p. 23)
47. Existing horizontal transmission structures #5901 and #5902 (each approximately 55 feet tall) would be removed and replaced by two vertical 85-foot tall single-circuit steel poles on concrete foundations. From these two steel poles, the existing east and west segments of the line would be brought into the substation. (CL&P 1, Vol. I, p. F-2; CL&P 7, K. Bowes, p. 20; Tr. 1, p. 23)
48. New pole #5902 would be located 150 feet west of the existing #5902 structures. (CL&P 1, Vol. I, p. F-2)
49. New pole #4988 would be located approximately 40 feet east of the existing structure #5901. (CL&P 1, Vol. I, p. F-2)
50. The substation would also include two transformer disconnect switches and two circuit switchers. (CL&P 1, Vol. I, p. F-2)

51. The substation would include one 47 MVA, 115-kV to 23-kV power transformer and two 20.8 MVA 23-kV to 13.8-kV autotransformers to supply two 13.8-kV distribution feeder circuits (one from each autotransformer) which can take over portions of circuits from the Guilford Substation. Cables for the two 13.8-kV circuits and for one 23-kV feeder circuit would exit the substation underground in conduits southward to Stepstone Hill Road, following the general route of the proposed access drive. (CL&P 7, K. Bowes, p. 5)
52. The two initial 13.8-kV feeder cables would rise up poles and connect with the existing 13.8-kV overhead circuit conductors on the road-side pole along Stepstone Hill Road, one at a pole to the east of the access entrance and one at a pole to the west. (CL&P 7, K. Bowes, p. 6)
53. The 23-kV distribution feeder cable would rise on a pole of the same 13.8-kV overhead line on Stepstone Hill Road and connect to a new aerial cable west of the entrance of the driveway. The aerial cable would be supported on the poles below the level of the 13.8-kV circuit conductors. From there, it would proceed as aerial cable out to Route 77 and then continue south. (CL&P 7, K. Bowes, p. 6)
54. CL&P could use the proposed mobile transformer connection to accommodate a second 47-MVA transformer, if needed in the future. There would also be room for additional metal-clad switchgear at the proposed substation. (CL&P 7, K. Bowes, p. 6)
55. The access drive splits into two near the substation fence primarily for the convenience to access to the control enclosure and to provide an alternate entrance into the substation compound for a mobile transformer. (CL&P 5, Response 6)
56. The proposed substation does not currently require a backup generator. However, this could change in the future if reliability requirements change and a generator becomes necessary at this substation. CL&P would apply to the Council with a petition should a backup generator become necessary. (Tr. 1, pp. 76-77)
57. Within its fence line, the proposed substation would have dimensions of approximately 240 feet by 270 feet. (CL&P 1, Vol. I, p. F-1; CL&P 7, K. Bowes, p. 4)
58. Development of the site would require a net import of roughly 4,000 cubic yards of fill, depending on how much of the existing topsoil and/or gravel can be reused at the site. (Tr. 1, p. 48-49)
59. The nominal service life of the substation equipment is 40 years. (CL&P 1, Vol. I, p. F-3)
60. The construction phase of the project is expected to take approximately 12 to 18 months. (CL&P 1, Vol. I, p. F-1)
61. The tentative in-service date is June, 2009. (CL&P 7, K. Bowes, p. 7)
62. There are ten residences within 1,000 feet of the proposed site. The nearest residence (943 Durham Road) is 630 feet northwest of the proposed substation location. (CL&P 1, Vol. I, p. H-3; Tr. 1, pp. 16, 21-22)

63. The estimated costs for the siting, design, and construction of the proposed substation and supporting infrastructure totals \$8,466,000. This includes \$4,466,000 allocated to transmission costs and \$4,000,00 to distribution costs. (CL&P 1, Vol. I, p. F-3)

Environmental Considerations

64. The Connecticut Commission on Culture and Tourism (formerly the Connecticut Historical Commission) has indicated that the proposed undertaking would have no effect on historic, architectural or archaeological resources listed on or eligible for the National Register of Historic Places. (CL&P 1, Vol. I, Appendix E)
65. Route 77 abuts the western portion of the subject property and carries the scenic designation for approximately 11.5 miles through Guilford from the Durham Town Line southward to Water Street. North Madison Road is a locally designated scenic road located approximately 0.32 miles east of the site and spans roughly 1.6 miles in a northeasterly direction from Nut Plain Road to Twin Bridge Road. Approximately 1.9 miles southwest of the site, Moose Hill Road is also a scenic road.
66. According to the Connecticut Department of Environmental Protection's Natural Diversity Database, there is one State-designated Species of Special Concern plant on the subject property: Virginia Snakeroot (*Aristolochia serpentaria*). A field investigation for the Virginia Snakeroot was conducted by a qualified botanist on June 21, 2005. No Virginia Snakeroot was located. (CL&P 1, Vol. I, p. H-9; CL&P 1, Vol. II, App. E)
67. Although not identified by the CTDEP, Featherfoil (*Hottonia inflata*), another State-designated Species of Special Concern was observed on the property during the Virginia Snakeroot investigation. The population occurs in a shallow pool within wetlands located in the northern portion of the subject property. (CL&P 1, Vol. I, p. H-9)
68. A deceased specimen of the Eastern Box Turtle (*Terrapene c. caroline*), a Connecticut Species of Special Concern, was observed on the proposed substation property. No live specimens were found on the property. (CL&P 1, Vol. I, p. H-9)
69. CTDEP notes that the proposed activities will not affect the Virginia Snakeroot and the Featherfoil. CTDEP notes that, prior to construction, the locations of the two plants be flagged to prevent any inadvertent impacts. (CL&P 1, Vol. I, p. Appendix E)
70. The proposed substation would not be located within wetlands. (CL&P 6, M. Libertine, p. 3)
71. Limited site work associated with the proposed gravel driveway would occur within the 100-foot upland review areas. Minor disturbances within these areas are necessary to establish the new driveway and install a culvert to avoid future surface water ponding along the driveway and washout of the gravel. The nearest construction activities would encroach within the outer 20 feet of the upland review areas, resulting in earthwork no closer 80 feet from wetlands. (CL&P 6, M. Libertine, p. 4)

72. Upland review areas disturbed for constructions activities would be restored by dressing with topsoil and seeding with a New England conservation/wildlife mix, supplying a cover of grasses, forbs, wildflowers and legumes to provide both erosion control and enhanced wildlife habitat value. (CL&P 6, M. Libertine, p. 4)
73. Select trees within the upland review area may require cutting to accommodate the new connections between the substation and the existing transmission line. The nearest tree that may need to be removed is located approximately 40 feet from wetlands. (CL&P 6, M. Libertine, pp. 4-5)
74. Existing pole #5902 is currently located on the eastern fringe of a wetland. The pole would be removed by cutting it at the base. CL&P would instruct its contractors to avoid direct disturbances to the wetland by felling the structure eastward, away from this resource. (CL&P 6, M. Libertine, p. 5)
75. Moving the proposed substation to the east to avoid the aquifer protection area would result in: additional earth work, with the possibility of blasting bedrock; placing nearly 10 feet of fill within 11 feet of wetlands; positioning the substation 100 feet closer to the nearest property line; and the removal of additional trees which may increase visibility from surrounding residences. (CL&P 6, M. Libertine, p. 4)
76. Approximately 256 trees with a diameter at breast height of six inches or greater would be removed for the proposed project. This accounts for the substation footprint, a 20-foot area beyond the fence line for construction activities, the access drive, and areas with the interconnection with the transmission line occur. (CL&P 6, M. Libertine, p. 13; CL&P 4, Response 7)
77. There are no flood hazard areas on the proposed substation property. (CL&P 1, Vol. I, p. K-7)
78. CL&P has no plans to store equipment, supplies, or materials at the substation. (CL&P 5, Response 4)
79. CL&P has no plans to store fuels or hazardous materials at the substation. However, in the event an emergency generator is needed in the future, it would likely be fueled by propane. (CL&P 5, Response 2)
80. CL&P does not anticipate that blasting would be necessary at the site. In the event it becomes necessary, CL&P would hire a certified blasting specialist and follow strict procedures to ensure safety. (CL&P 5, Response 3)
81. The proposed substation would have some low level lighting to identify the entrance door to the substation, but there also would be emergency lighting on-site in the event of work that would take place during nighttime hours or inclement weather. (Tr. 1, p. 36)
82. Each transformer would have its own secondary containment, consisting of an underlying and surrounding polyvinyl-lined sump, capable of holding 110 percent of the transformer's oil capacity. In addition, an Imbiber Beads Drain Protection System will be installed in a secondary containment structure. (CL&P 6, M. Libertine, p. 12)

83. The noise levels generated by the proposed substation are projected to be below the CTDEP regulations and the Guilford Noise Control Ordinance (45 dBA night-time level and 55 dBA day-time level). (CL&P 1, Vol. I, p. K-7)
84. Impulse noise, though rare, would be generated from switching and circuit breaker opening and closing. The impulse noise levels are not expected to exceed the levels permitted at the property line by DEP's noise control regulations. (CL&P 5, Response 5)
85. CL&P would install erosion controls at the limits of work in accordance with the approved Project Plans, the D&M Plan and the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. (CL&P 1, Vol. I, p. L-1)

Visibility

86. Only one residence located at 70 Stepstone Hill Road would have a seasonal view of the substation. (Tr. 1, p. 36)
87. No residences are expected to have a year-round view of the substation. (Tr. 1, p. 36)
88. The substation is not expected to be visible from any historic or recreational areas. (Tr. 1, p. 36)
89. The substation is not expected to be visible from any state or local scenic roads. (CL&P 4, response 6)
90. CL&P would develop and incorporate a landscape plan in the Development and Management Plan to further mitigate any potential views of the substation. (CL&P 6, M. Libertine, p. 5)

Electric and Magnetic Field Levels

91. The dominant source of electric and magnetic fields along the boundaries of the property would be the existing 115-kV transmission circuit #1508. (CL&P 1, Vol. I, p. M-2)
92. The highest levels of proposed electric and magnetic fields that are likely to occur around the perimeter fence of the substation would come from the transmission and distribution lines entering and leaving the substation. (CL&P 1, Vol. I, p. M-1)
93. Magnetic fields produced by the substation equipment inside the fence would decrease rapidly with distance and would not cause any noticeable change in the fields along the property lines. (CL&P 1, Vol. I, pp. M-1 and M-5)
94. While the proposed substation's equipment would not produce measurable increases in electric and magnetic fields at the property lines, its operation would lead to a general increase in currents on the 115-kV line segment crossing over the westerly property line and a small decrease in currents on the 115-kV line segment crossing over the easterly property line. (CL&P 1, Vol. I, p. M-1; CL&P 7, K. Bowes, P. 27)

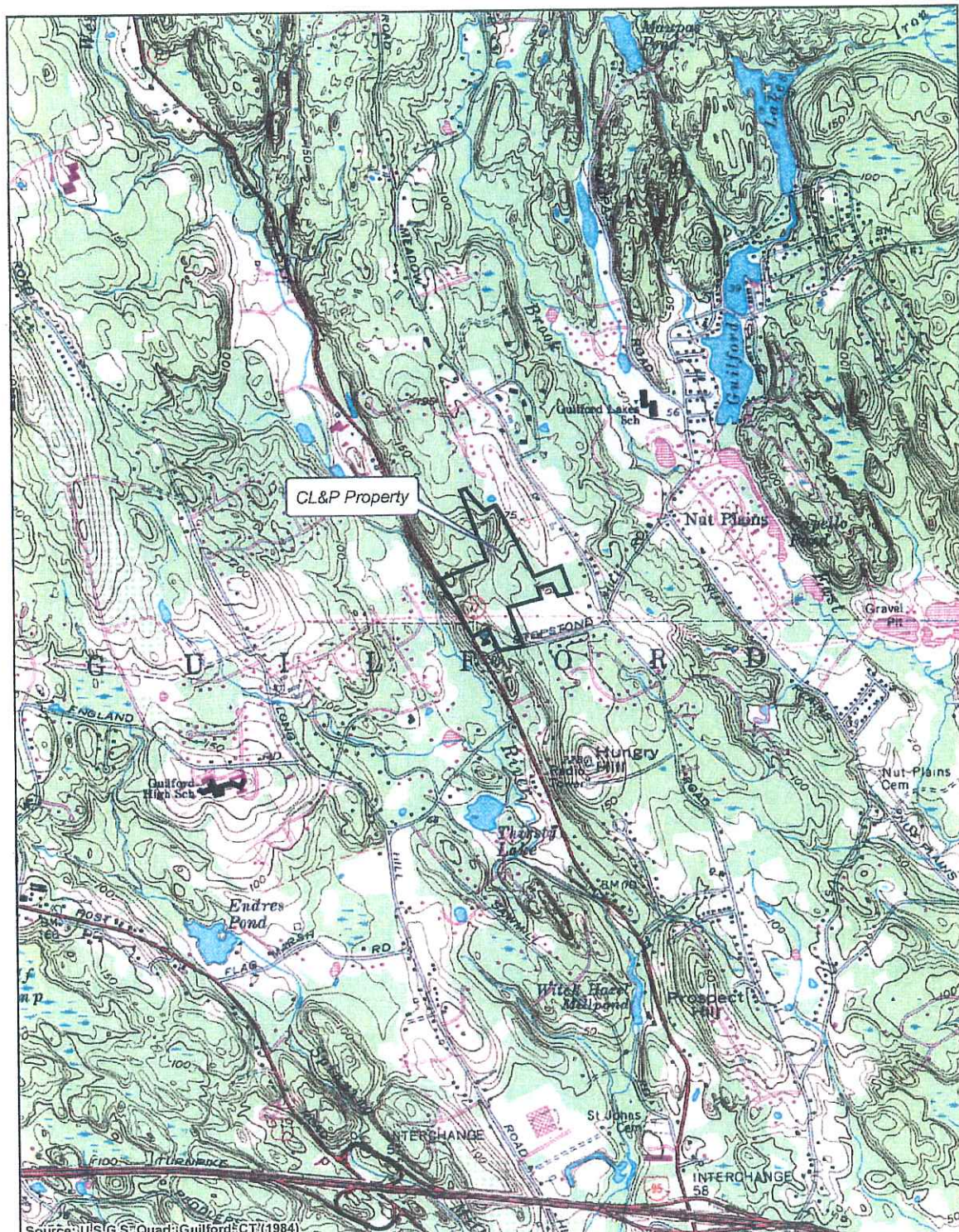
95. CL&P performed its magnetic field calculations based on ISO New England's 2013 peak line current of approximately 400 amperes and average line current of 280 amperes. The existing magnetic fields are based on field measurements. (CL&P 1, Vol. I, pp. M-5, M-6, and M-10)
96. The highest existing magnetic field level where the transmission line crosses the western property line during average load conditions is approximately 9.4 mG. The highest magnetic field levels where the transmission line crosses the western property line during average load conditions after construction would be approximately 13.4 mG. (CL&P 1, Vol. I, p. M-7)
97. The highest existing magnetic field levels where the transmission line crosses the western property line during peak load conditions is approximately 12.5 mG. The highest magnetic field levels where the transmission line crosses the western property line during peak load conditions after construction would be approximately 18 mG. (CL&P 1, Vol. I, p. M-7)
98. The highest existing magnetic field level where the transmission line crosses the eastern property line during average load conditions is approximately 39 mG. The highest magnetic field levels where the transmission line crosses the eastern property line during average load conditions after construction would be approximately 20 mG. (CL&P 1, Vol. I, p. M-8)
99. The highest existing magnetic field levels where the transmission line crosses the eastern property line during peak load conditions is approximately 56 mG. The highest magnetic field levels where the transmission line crosses the eastern property line during peak load conditions after construction would be approximately 29 mG. (CL&P 1, Vol. I, p. M-9)
100. Underground 13.8-kV and 23-kV distribution getaway cables are planned to exit the proposed substation under the proposed substation's access road to the south towards Stepstone Hill Road. Current flows over these cables would produce magnetic fields with measurable levels perhaps extending to a distance of 50 feet to either side. (CL&P 1, Vol. I, p. M-11; CL&P 7, K. Bowes, p. 29)
101. The magnetic field at the residence at 70 Stepstone Hill Road (50 feet from the center of the transmission line) would decrease from 8.3 mG to 6.4 mG with the proposed substation, assuming peak year 2013 line loading. (CL&P 4, Response 2; CL&P 1, Figure H1 and Exhibit 1: List of Abutters)
102. The magnetic field at the residence at 840 Durham Road (140 feet from the center of the transmission line) would increase from 1.1 mG to 1.6 mG with the proposed substation, assuming peak year 2013 line loading. (CL&P 4, Response 2; CL&P 1, Figure H1 and Exhibit 1: List of Abutters)
103. All other abutting residences are more than 250 from the center of the transmission line. Magnetic fields at these residences would remain essentially unchanged. (CL&P 4, Response 2)
104. The typical background levels of magnetic fields in homes range up to 4 mG. (CL&P 1, Vol. I, p. M-1; Tr. 1, p. 34)

105. CL&P incorporated the Council's (1993) Electric and Magnetic Field Best Management Practices in the design of the substation. (CL&P 7, K. Bowes, p. 30)

Safety and Reliability

106. Reliability would be maintained by transformer protection devices and redundant automatic protective relaying equipment. Protective relaying equipment would provide automatic detection of abnormal conditions. When an abnormal condition occurs, a protective trip signal would be sent to the respective circuit breaker(s) to isolate faulted equipment. CL&P plans to install redundant protective relaying schemes with continuous monitoring. Protective relaying equipment along with a Supervisory Control and Data Acquisition (SCADA) system allows for monitoring and remote control of the equipment by the Connecticut Valley Electric Exchange (CONVEX) would be maintained by CL&P. (CL&P 7, K. Bowes, p. 22)
107. The perimeter of the proposed substation would be surrounded by a seven-foot high chain-link fence with an additional foot of barbed wire on top. A locked gate would be installed across the driveway entrance. (CL&P 1, Vol. I, p. J-2; CL&P 7, K. Bowes, pp. 22-23)
108. CL&P would comply with the pertinent standards of the Institute of Electrical and Electronic Engineers, the American National Standards Institute and the National Fire Protection Association for fire protection in its substations. (CL&P 7, K. Bowes, p. 23)
109. The proposed substation would have fire protection consisting of: a firewall between the power transformers; fire extinguishers, smoke and heat detectors installed in the relay and control enclosure; and remote equipment monitoring. Specifically, fire and smoke detection would activate an alarm at CONVEX so appropriate action can be taken. (CL&P 11, K. Bowes, pp. 19-20; CL&P 1, Vol. I, pp. 49, 50)
110. CL&P trains its employees and local fire departments on safe methods to deal with a substation fire. The Guilford Fire Marshall is satisfied with CL&P's fire protection measures. (CL&P 7, K. Bowes, p. 23)
111. CL&P operates more than 200 substations in Connecticut. There has not been a catastrophic transformer fire in 23 years. It is a rare event when a transformer fails and even more rare for a transformer to fail and catch fire. (Tr. 2, p. 18)
112. The proposed substation would have fire protection consisting of: a firewall between the power transformers; fire extinguishers, smoke and heat detectors installed in the relay and control enclosure; and remote equipment monitoring. Specifically, fire and smoke detection would activate an alarm at CONVEX so appropriate action can be taken. (CL&P 11, K. Bowes, pp. 19-20; CL&P 1, Vol. I, pp. 49, 50)

Map 1
Location Map



(CL&P 1, Vol. I, p. A-3)

